An Economy-Wide Perspective on Earnings Data in Ireland: Methodological Issues and Analysis

by

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Introductory Comments

The objective of this article is to give a detailed description as to how earnings data is recorded in the Irish economy and to develop new methods of presenting this data in order to give a more comprehensive picture of wage movements over the period since 1998. Currently, earnings data are published by the Central Statistics Office (CSO) on a sectoral basis with similar methodological backgrounds across the surveys. However, the surveys can vary though in terms of their scope. For example the industrial earnings survey presents both hourly and weekly earnings series' while the distribution & business services earnings survey contains just weekly earnings data. The type of worker being surveyed can also vary, some surveys covering all workers and other surveys covering just full-time workers. Therefore, a discussion of the various sectoral earnings surveys is necessary.

A single series that attempts to capture the movement in earnings across the whole economy does not exist in Irish statistics. The New Earnings Survey (NES), which has been carried out each year in the UK since 1970, provides a very detailed and comprehensive source of earnings information. It looks at earnings levels across the wider economy in terms of sectors, occupation, gender, regions, age etc. Although there are moves in Ireland towards a comprehensive survey investigating earnings related issues, it is not currently available. This article will attempt, insofar as Irish sectoral earnings data allows, to move as close as possible to an average earnings series for the whole economy. Once this series has been constructed, it will be possible to view sectoral earnings data in the Irish economy from a new perspective. One of the features that emerge from this methodology is the possibility of making meaningful comparisons of cross-sectoral earnings growth. It is also possible to amalgamate the data in such a way so as to compare earnings growth in more aggregated sectors, for example, in the public sector versus the private sector.

This type of analysis is relevant given the ongoing emphasis on wage trends in the context of national partnership and the report from the Public Service Benchmarking Body (PSBB) published in July 2002. The Benchmarking Report was an extension of the latest national wage agreement, Sustaining Progress, which is due to expire at the end of 2004.

I. Methodology

The methodology outlined here is new insofar as it attempts to construct a single average earnings series for the economy at large by taking the various sectoral earnings surveys published by the Central Statistical Office (CSO) and amalgamating them together. It does this by using sectoral employment from the Quarterly National Household Survey (QHNS) to create a set of weights and then applying them to the sectoral earnings surveys. These surveys will be outlined in order to highlight the most important differences between them as well as the constraints they impose on any attempts to produce an average earnings series for the wider economy. Full details of the sectoral employment data from the Quarterly National Household Survey (QNHS), used as weights in the calculations in this article, will be discussed as well as the coverage of the resulting average earnings series. A full individual discussion of the various sectoral earnings surveys published by the Central Statistics Office (CSO) is contained in Appendix I

Sectoral Earnings Surveys

The enterprise-based sectoral earnings surveys published by the CSO and being considered in this article are:

- Industrial Earnings and Hours Worked
- Earnings in Distribution and Business Services
- Public Sector Employment and Earnings
- Earnings and Hours Worked in Construction
- Banking, Insurance and Building Societies: Employment and Earnings

Most importantly, each sectoral earnings survey generally collect a similar type of earnings. This is the gross weekly payment made to the employee before income tax or social insurance deductions and includes overtime, regular bonuses/commission, holiday/sick pay, "wet time" in the case of construction workers etc.

Each survey collects weekly earnings but only two surveys collect data on average weekly hours worked (industry and construction). Given that one of the objectives here is to combine these earnings series' into a single average earnings series for the whole economy, the form of earnings data common to *each* series would have to be used (i.e. weekly earnings). In this case, an average weekly earnings series can be produced from the sectoral earnings data and any attempts to correct for average hours worked would have to be made ex post using a different source. The Quarterly National Household Survey (QNHS) can be used for this purpose, an aspect that will be explained later.

The weighting system adopted here attempts to use sectoral employment data (ILO basis) from the QNHS to weight the various sectoral weekly earnings series' and amalgamate them into a single weekly earnings series purporting to represent the wider economy. The first question that arises is what type of worker is going to be included in the weighting system.

Since the earnings data are derived from enterprise-based surveys, only *employees* from the QNHS should be included in the weights and therefore in terms of employment status, this means excluding all self-employed workers and assisting relatives.

A more difficult question relates to whether part-time employees should be included in the weights. Generally each survey collects earnings data for both full-time and part-time employees but the survey on earnings in the distribution & business services sector (distribution & business services accounts for approximately 38 per cent of total employees) only covers full-time employees. This presents a problem due to the fact that there now exists a number of earnings series' by sector, each measuring weekly earnings for all employees (full-time and part-time employees undistinguished) and one large survey measuring weekly earnings for just full-time employees. Therefore, there are drawbacks to including part-time employees in the weights and excluding them.

This matter can be resolved to a degree by considering Table 1, which details the numbers of part-time employees by sector. The second column gives proportions of part-time employment *within* each sector while the third column gives the distribution of part-time employment *across* the selected sectors. The data are taken from the QNHS, quarter 2 (2001). It can be seen that approximately 70 per cent of all part-time employees are contained within the general private market services area and over 20 per cent of employment within that sector is part-time employment. The proportions shown here do not change significantly overtime and a similar part-time employment structure would have been observed going back a number of years.

Table 1. Part-Time Employees by Sector, 2001.

	PT Employment (000s)	**% *Within* Sector** (%)	**% *Across* Sectors** (%)
Industry	**17.9**	**0.06**	**0.10**
Hi-Tech	6.4	0.04	0.04
Other Manufacturing	11.5	0.07	0.06
Construction	**5.6**	**0.03**	**0.03**
Private Market Services	**127.8**	**0.19**	**0.71**
Distribution	61.0	0.25	0.34
Trans & Comm.	8.5	0.08	0.05
Hotels and Restaurants	32.4	0.32	0.18
Other Market Services	25.8	0.12	0.14
Non-Market Public Sector	**27.5**	**0.15**	**0.15**
PAD	6.9	0.09	0.04
Education	20.6	0.20	0.12
Total	**178.8**	**0.13**	**1.00**

Note The figures in the third column here were calculated using *only* the various sectors shown above i.e. the sectors applicable to existing earnings series' surveys relevant in this article. Notable omissions are the sectors of agriculture and health (public sector). There are a further 70,000 part-time employees in different sectors not covered above.

The data are evidence in favour of excluding part-time employees from the employment weights. The distribution & business services earnings survey[1] does not collect earnings data for the 20 per cent of that sector that are classified as part-time employees, therefore including part-time employees in the weights would over-estimate the importance of that earnings series and bias the resulting amalgamated earnings series for the wider economy. Or put another way, given that 70 per cent of all part-time employees being dealt with here are working within the distribution & business services sector and no earnings are being collected for these people, it seems inappropriate to include part-time staff generally in the weighting system for an economy-wide weekly earnings series. Therefore, when weighting the various sectoral earnings series', only full-time employees (classified by the ILO definition) from the QNHS are used.

[1] The distribution & business services survey collects earnings data for the majority of private market services. The banking, insurance and building societies survey collects earnings data for part of the other market services sector.

Sectoral Employment Weights

Table 2 shows the numbers of full-time employees from the relevant sectors that go into the weighting process. The importance of the distribution & business services survey is immediately obvious given that the private market services category has such a large weight at 0.44 in 2001. In contrast, industry and construction combined has a weight of 0.41 and the public sector (excluding health) has a 2001 weight of 0.15.

The sectors were grouped on the basis of the EU NACE nomenclature, which has been used since the introduction of the QNHS in 1998. In the case of the industrial earnings survey and the distribution & business services earnings survey, the use of the NACE classification system was particularly useful since these surveys also use the NACE system. In that case, it was relatively simple to apportion the appropriate full-time employee weights from the QNHS to both the industrial and distribution & business services sectoral earnings series'.

In the weighting process, the earnings series from the banks, insurance and building societies survey were taken to proxy the earnings in the financial services sector generally. This was not a perfect solution but was necessary in order to achieve a better economy-wide representation and to ensure that the weights (i.e. QNHS) were consistent across each sectoral earnings survey. The category 'other market services' in Table 2 comprises of the banks, insurance and building societies[2] as well as other business services.

There was also some ambiguity as regards the application of weights to the non-market public sector as the public sector survey deals only with public servants and no explicit classification system was used. In this case, some subjectivity was required in choosing the correct NACE codes (sectoral classification) appropriate to that earnings survey. Full-time employees in public administration and defence (PAD constitutes a single two-digit NACE code) are used to cover the categories of the civil service, the army and the gardaí from the public sector earnings survey. Full-time employees in education (which also has a single two-digit NACE code in the QNHS) are used to cover education in the public sector earnings survey. These employment weights could be seen as a proxies for full-time employees in the public sector as, for example, those declaring as being employed in education in the QNHS would include a degree of private education therefore the weight might be slightly higher than expected. However, these inconsistencies are not considered to be significant.

One further point needs to be made regarding the public sector. A correction was made to the headline public sector (excluding health) earnings series to allow for the exclusion of the semi-state bodies earnings data. The reason the semi-state bodies were excluded was to do with double counting in the amalgamation of the different earnings series'. For example CIE is a large semi-state company who would have been surveyed under land transport in the distribution & business services survey as well as in the earnings survey for the public sector. Other commercial and non-commercial semi-state companies could have already been surveyed in other earnings

[2] 'Banking, Insurance and Building Societies: Employment and Earnings' is a separate CSO sectoral earnings survey but is amalgamated into this category.

surveys in the sectors in which they operate. Therefore the earnings of those in the semi-state bodies have been excluded from the earnings in the public sector series.

Table 2 shows the full-time employee weights applicable between 1998 and 2001 and used in the calculations for the economy-wide weekly earnings series. Although these weights did not undergo any major changes over this relatively short period, it is important to reflect the structural changes that occurred in the economy during this time. It is interesting to note that the weight for industry is falling over the three years while the weights for construction and private market services are increasing slightly.

Table 2. Full-time Employees & the Sectoral Weights, 1998 – 2001

	Full-Time Employees (000s)				**Weights**			
	1998	**1999**	**2000**	**2001**	**1998**	**1999**	**2000**	**2001**
Industry	266.9	270.7	270.6	277.5	0.32	0.30	0.28	0.28
Hi-Tech Manufact.	126.6	129.7	133.1	141.1	0.15	0.14	0.14	0.14
Other Manufact.	140.3	141.0	137.4	136.4	0.17	0.16	0.14	0.14
Construction	85.0	98.5	115.6	126.3	0.10	0.11	0.12	0.13
Private Mkt. Serv.	356.4	393.9	425.7	444.2	0.42	0.43	0.44	0.44
Distribution	121.1	128.3	137.6	144.5	0.14	0.14	0.14	0.14
Trans & Comm.	63.8	72.7	76.7	83.2	0.08	0.08	0.08	0.08
Hotels & Restaurants	47.7	49.5	53.7	56.0	0.06	0.05	0.06	0.06
Other Market Services	123.8	143.4	157.7	160.5	0.15	0.16	0.16	0.16
Non-Mkt Serv.	136.0	146.0	152.1	153.8	0.16	0.16	0.16	0.15
PAD	66.9	70.3	74.5	76.0	0.08	0.08	0.08	0.08
Education	69.1	75.8	77.6	77.8	0.08	0.08	0.08	0.08
Total	844.3	909.1	964.0	1001.8	1.00	1.00	1.00	1.00

Source: QNHS

Coverage

Since one of the objectives is to produce a single economy-wide weekly earnings series, it is appropriate to mention what proportion of the economy will be covered by this series. Part-time workers, the self employed and assisting relatives will not be covered by the overall series. It is therefore an earnings series for full-time employees. There are some notable sectors absent from the calculations due to the scarcity of data. The first of these is agriculture, for which the currently available earnings survey is unsuitable since the survey only gets carried out every four years. The second and more important omission is the health sector, which forms a large part of all public services (almost 30 per cent). Earnings data for the public sector is largely taken from administrative data, for example government payroll systems, but unfortunately this data has not been made available by the health sector. Therefore both agriculture and the health sector are excluded from the economy-wide earnings series.

Table 3 gives figures from the QNHS for total full-time employees between 1998 and 2001 and the number and proportion of these workers that are represented in the

economy-wide series. As can be seen, approximately 86 per cent of full-time employees are covered by the series. The majority of the shortfall is made up by agriculture and the health sector but a number of smaller categories are not represented either. These come from the social and personal activities area for which wage data would be difficult to gather.

Table 3. Full-Time Employees Covered by the Economy-Wide Average Earnings Series, 1998 – 2001.

	1998	**1999**	**2000**	**2001**
			(000s)	
Total Full-Time Employees	981,502	1,057,259	1,115,432	1,158,223
Full–Time Employees Covered	844,291	909,135	963,990	1,001,785
% Covered	86	86	86	86

Interpretation

It is important to remember that changes in the structure of employment within organisations could potentially affect the average weekly earnings recorded. This is a problem inherent within each enterprise-based survey (particularly the public sector). For example, the appointment of replacement staff at lower grades and therefore lower pay levels could depress the average earnings. Another example would be a reduction in the numbers of part-time staff, who generally get paid less than full-time staff, could increase the average earnings. It must be borne in mind that within the context of this article, structural changes can have an affect on the indices but because the period under review is relatively short (1998 – 2003), this problem is not thought to be significant.

II. Recent Earnings Trends in Ireland

Table 4 shows the average gross *weekly* earnings series for full-time employees in the economy, constructed using the methodology described in Section I, for Q1 1998 to Q3 2003.[3] Also shown are the average total weekly hours worked for each quarter over the same period. Using this series, the average gross *hourly* earnings can be estimated for full-time employees. All earnings are denominated in euro (€) and no seasonal adjustments have been made.

The average usual weekly hours worked were calculated using data from the Quarterly National Household Survey (QNHS). To ensure that this weekly hours worked series was consistent with the weekly earnings series, a number of precautions had to be taken. Firstly, the average usual weekly hours were calculated using just full-time employees. Secondly, only the sectors used in the weighting of the weekly earnings series were used when constructing the corresponding series for average usual hours worked. Therefore, for example, weekly hours from agriculture and the health sector have been excluded from this series.

Table 4. Average Gross Weekly and Hourly Earnings (€) for Full-Time Employees (Non-Seasonally Adjusted), Q1 1998 – Q3 2003.

Period	Average Gross Weekly Earnings (€)	Year on Year Change (%)	Average Usual Weekly Hours	Average Gross Hourly Earnings (€)	Year on Year Change (%)
Q1 – 98	434.8		40.2	10.8	
Q2 – 98	443.9		40.2	11.1	
Q3 – 98	448.0		40.1	11.2	
Q4 – 98	455.7		40.0	11.4	
Q1 – 99	456.8	5.1	39.9	11.5	5.9
Q2 – 99	465.4	4.8	39.9	11.7	5.6
Q3 – 99	475.0	6.0	39.9	11.9	6.7
Q4 – 99	486.6	6.8	39.8	12.2	7.4
Q1 – 00	488.3	6.9	39.8	12.3	7.0
Q2 – 00	500.9	7.6	39.8	12.6	7.8
Q3 – 00	510.3	7.4	39.8	12.8	7.5
Q4 – 00	535.3	10.0	39.8	13.4	10.0
Q1 – 01	536.8	9.9	39.8	13.5	10.0
Q2 – 01	547.3	9.3	39.8	13.8	9.4
Q3 – 01	557.2	9.2	39.7	14.0	9.4
Q4 – 01	570.4	6.6	39.6	14.4	7.1
Q1 – 02	566.9	5.6	39.6	14.3	6.2
Q2 – 02	575.2	5.1	39.5	14.6	5.8
Q3 – 02	582.5	4.6	39.5	14.8	5.3
Q4 – 02	594.7	4.3	39.4	15.1	4.8
Q1 – 03	594.9	4.9	39.3	15.1	5.5
Q2 – 03	604.9	5.2	39.3	15.4	5.6
Q3 – 03	608.8	4.5	39.4	15.5	4.8

Quarters one, two, three and four here refer to March, June, September and December respectively.

[3] Table 3 shows the proportion of workers in the economy that are covered by this economy-wide average gross weekly earnings series.

It can be seen from Table 4 that in absolute terms, average gross weekly earnings in the Irish economy increased from €435 to €609, an increase of some 40 per cent in the space of five and a half years. The corresponding change in average gross hourly earnings was an increase from €10.8 in Q1 1998 to €15.4 in Q3 2003. This represents a proportional increase of some 43 per cent. The reason for the difference is that the average total hours worked has fallen slightly over this period. On average, full-time employees were working almost one hour less on a weekly basis in 2003 than they were in 1998.

On an annual average basis, the weekly and hourly earnings increased by some 6.4 per cent and 6.8 per cent respectively. In comparison, consumer prices increased over the same period by an annual average of 4.0 per cent. Therefore in terms of purchasing power, full-time employees in the Irish economy increased their real weekly earnings by 2.3 per cent and their real hourly earnings by 2.7 per cent on an annual average basis over the period being considered here.

Table 4 also contains year-on-year changes in both weekly and hourly earnings, which represent the percentage change between the relevant quarter and the corresponding quarter one year previous. Table 5 contain the annual rates of increase in weekly and hourly earnings for 1999 to 2003[4].

Table 5. Annual Rates of Increase in Average Gross Weekly and Hourly Earnings (%) for Full-Time Employees, 1999 to 2003.

	1999	2000	2001 (%)	2002	2003	1998 - 2003 Annual Avg. (%)
Average Gross Weekly Earnings	5.7	8.0	8.7	4.9	4.9	6.4
Average Gross Hourly Earnings	6.4	8.1	9.0	5.5	5.3	6.8

	1998	1999	2000 (hours)	2001	2002	2003
Annual Average Total Weekly Hours	40.1	39.9	39.8	39.7	39.5	39.3

Note: The annual rates of increase in earnings for 2003 are preliminary estimates as they are calculated using data from the first three quarters of that year only.
The annual average increases in earnings for 1998 – 2003 assumes that the annual rates for 2003 are that as stated above.
The average total weekly hours for each year are calculated as an average of the quarterly figures within that year.

The growth in weekly earnings in 1999 at an annual rate of 5.7 per cent was moderate relative to the overall growth in weekly earnings within the period under review here. The annual rate of increase in hourly earnings was somewhat faster at 6.4 per cent which was caused by a fall in average weekly hours worked. The years 2000 and 2001 saw weekly earnings begin to accelerate quickly, recording annual increases of 8.0 per cent and 8.7 per cent respectively. Average hourly earnings grew slightly faster over these years as the average hours worked continued to creep downwards. This acceleration was due to a tightening in the labour market at that time as the demand for labour began to exceed the supply. One indicator of this tightening effect was the fall in the vacancy rate, which is the percentage of total labour requirement/demand not being met. Between the end of 1999 and the end of 2001,

[4] The annual rate is calculated by taking the average of the year-on-year changes in any one particular year.

the vacancy rate fell from 6 per cent to 3 per cent[5]. This would have contributed significantly to the observed increase in weekly and hourly earnings.

The economy reached a turning point in mid-2001 as the economy slowed and the previous decade of unprecedented growth in national income came to an end. Subsequently, the unemployment rate began to increase, which was accompanied by a slowing in the rate of growth of earnings once more. The annual rate of increase in weekly earnings in 2002 was 4.9 per cent while hourly earnings grew at an annual rate of 5.5 per cent.

The annual increases for weekly and hourly earnings for 2003 in Table 5 are estimates using the data from the first three quarters of the year. Judging by these, earnings seem to be growing at approximately the same rate as they did in 2002. The current *ESRI Quarterly Economic Commentary* (QEC) predicts the rate of growth in hourly earnings to slow further thereafter with a rate of growth in 2004 of 3.6 per cent. The low rate of inflation forecast for 2004 will help maintain growth in real wages.

Seasonality

Figure 1 displays quarter-on-quarter growth rates in average gross hourly earnings from a graphical perspective from Q1 1998 to Q3 2003. Examining Figure 1 closely, there is distinct evidence of a 'seasonal' pattern within any particular year. The growth in hourly earnings during the first quarter (January to March) of the year is at its slowest while the fourth quarter (October to December) generally records the fastest growth compared to any other time during the year. The growth in earnings in the second and third quarters usually lie somewhere in between these two extremes. The quarter-on-quarter growth rates in average gross weekly earnings display a very similar pattern.

One explanation for this seasonal pattern of earnings growth is related to the coverage of the earnings collected in the various sectoral surveys. Each survey allows for the inclusion of bonuses and commission payments as long as they are a regular aspect of the employee earnings. The majority of these payments would be made in the latter part of the year, after employee performance can be assessed. The degree and pattern of seasonality evident within the earnings data can vary significantly across the sectors. Some sectors show far stronger signs of seasonality than other sectors. Also some sectors show a different seasonal pattern than that outlined above. Certainly though, the strongest evidence of a seasonal pattern emerges from the economy-wide earnings series', once the sectoral earnings series have been amalgamated together.

[5] *National Survey of Vacancies in the Private Non-Agricultural Sector 2001/2002* - A report prepared for FAS and Forfas (2003), Williams, J; Hughes, G; Blackwell, S; Casey, B

Figure 1. Quarter-on-Quarter Growth Rates (%) in Average Gross Hourly Earnings, Q1 1998 - Q3 2003.

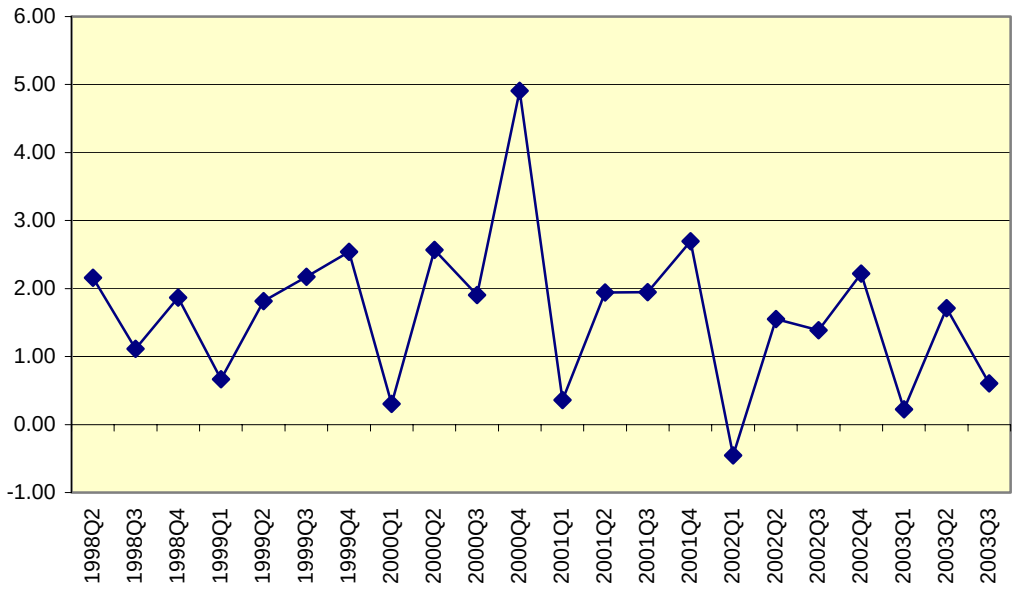


Table 6. Average Gross Weekly and Hourly Earnings (€), Seasonally Adjusted, Q1 1998 – Q3 2003.

Period	SA Average Gross Weekly Earnings (€)	Quarter on Quarter Change %	SA Average Gross Hourly Earnings (€)	Quarter on Quarter Change %
Q1 – 98	437.4	-	10.9	-
Q2 – 98	444.1	1.5	11.1	1.7
Q3 – 98	448.0	0.9	11.2	1.1
Q4 – 98	452.7	1.0	11.3	1.2
Q1 – 99	459.6	1.5	11.5	1.8
Q2 – 99	465.7	1.3	11.7	1.3
Q3 – 99	475.1	2.0	11.9	2.1
Q4 – 99	483.2	1.7	12.1	1.8
Q1 – 00	491.3	1.7	12.3	1.6
Q2 – 00	501.3	2.0	12.6	2.1
Q3 – 00	510.4	1.8	12.8	1.8
Q4 – 00	531.5	4.1	13.3	4.1
Q1 – 01	540.1	1.6	13.6	1.7
Q2 – 01	547.8	1.4	13.8	1.5
Q3 – 01	557.3	1.7	14.0	1.8
Q4 – 01	566.3	1.6	14.3	1.8
Q1 – 02	570.3	0.7	14.4	0.9
Q2 – 02	575.7	0.9	14.6	1.2
Q3 – 02	582.8	1.2	14.8	1.4
Q4 – 02	590.5	1.3	15.0	1.3
Q1 – 03	598.4	1.3	15.2	1.5
Q2 – 03	605.3	1.1	15.4	1.3
Q3 – 03	609.1	0.6	15.5	0.8

Quarters one, two, three and four here refer to March, June, September and December respectively.

Table 6 shows average gross weekly and hourly earnings after seasonal adjustments have been made[6]. Appendix Figure A1 graphically shows the average gross weekly and hourly earnings series (seasonally adjusted) in index form as well as the Consumer Price Index (CPI). The advantage of seasonally adjusting the weekly and hourly earnings is that the earnings can then be analysed on a quarterly basis whereas before the analyses was constrained to using annual increases.

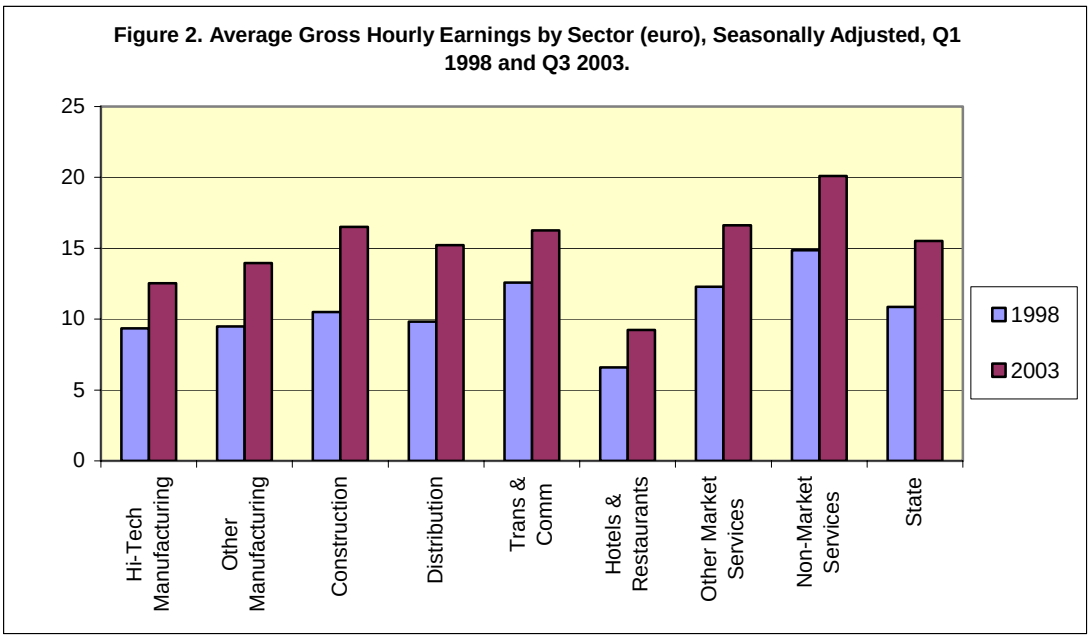
It can be seen from Table 6 that both hourly and weekly earnings in Q4 2000 increased at a quarterly rate of 4.1 per cent, more than twice as fast as any other quarter over the period. This was caused in the main by large increases in earnings in the public sector at that time and to a lesser extent construction and transport & communication.

Sectoral Earnings

This section, which deals with earnings trends by sector, will use the seasonally adjusted average gross *hourly* earnings as its analytical base. In this case, the weekly earnings series' by sector have been adjusted appropriately using the corresponding average total hours worked in each sector. The average gross hourly earnings series' by sector have also been seasonally adjusted using the same procedures as that used with the more amalgamated average gross hourly earnings for the wider economy.

Figure 2 shows average gross hourly earnings (seasonally adjusted) by sector for two periods, Q1 1998 and Q3 2003, as well as the average gross hourly earnings for the wider economy. The quarterly hourly earnings series' by sector for the full period (seasonally adjusted) are contained in Appendix Table A1.

Figure 2. Average Gross Hourly Earnings by Sector (euro), Seasonally Adjusted, Q1 1998 and Q3 2003.



[6] In this article the seasonal adjustment procedures applied to both average gross weekly and hourly earnings have been carried out using the TRAMO/SEATS procedure developed by A. Maravell and V. Gomez of the Bank of Spain. This method, and the US Bureau of the Census X-12 ARIMA procedure, are described in a EUROSTAT website called DEMETRA. The data does suggest the presence of reasonably stable seasonal factors.

It can be seen from Figure 2, that in 1998, it is the service type jobs where hourly earnings were greatest. Full-time employees in non-market services (public sector) were registering the highest level of hourly earnings at almost €15 an hour. Transport & communication and other market services were earning in and around €12.50 an hour, above the state average level of €10.90. All other sectors were earning a level below this state average. Construction was at a level of €10.50, while distribution was earning almost one euro less at €9.80 an hour. Both divisions of industry were earnings approximately €9.40 an hour and the lowest level of sectoral hourly earnings in the economy was in the hotel & restaurant sector at €6.60 an hour.

Over the following five years hourly earnings grew in all sectors but at varying rates. In 2003 the average state hourly earnings level was approximately €15.50. Again full-time employees in certain service type industries were earning at a premium to this level, for example, in the public sector earnings were on average €20.10 an hour while in other market services and transport & communication earnings were approximately €16.50 an hour. Where previously average hourly earnings in construction were below the state average, strong earnings growth in this sector had brought earnings above the state average in 2003, up to a level of €16.50 an hour, similar to some of the service type sectors. The level of hourly earnings in manufacturing generally was again less than the state average, although earnings growth in the "other manufacturing" sector outpaced that in the hi-tech sector. As in 1998, average hourly earnings for full-time employees in the hotels & restaurants sector was the lowest in 2003 at just over €9.

Table 7 sheds further light on the performance of the various sectors in terms of hourly earnings growth. It looks at the earnings distribution across the sectors by expressing hourly earnings in each sector as a ratio of state average hourly earnings. This has been done for each year between 1998 and 2003 and therefore it is possible to see which sectors are gaining ground or otherwise in terms of average state hourly earnings. The actual hourly earning levels in each sector are also contained in this table for comparative purposes.

Note that these sectoral divisions would reflect different mixes of occupations and skills and therefore do not represent earnings for comparable work. It is for this reason that each sector is dissected, for the year 2001, in terms of occupational composition in Table 8 (see also Appendix Table A3 for a more detailed table). This exercise was also done for 1998 and the occupational profiles observed by sector in that year were virtually unchanged when compared with the 2001 figures. This is not unexpected given the short time period and the structural change that would be required to alter the occupational profile in any particular sector over that time.

First looking at industry, it can be seen from Table 7 that in 1998, both hi-tech manufacturing and "other manufacturing" had an hourly earnings level approximately 87 per cent of the state average. By 2003, the other manufacturing industry had slightly increased its earnings as a ratio of the state average while earnings in the hi-tech industries had lost ground, falling to 81 per cent of the state average. In this context, it must be noted that the hi-tech industry contains predominately foreign-owned multinationals exporting their goods to highly competitive global markets while the majority of companies in the other manufacturing industry are indigenously-

owned companies serving the domestic market. Therefore, the hi-tech sector is exposed to a more competitive market where controlling costs, including wages, is a more important issue. Also unionisation of employees would be less common among the hi-tech sector, which would also have a bearing on the outcome.

Table 7. Average Gross Hourly Earnings by Sector, Seasonally Adjusted, Q1 1998 – Q3 2003.

Sector	1998	1999	2000	2001	2002	2003	Change 1998 – 2003 %
			(€)				
Hi-Tech Manufacturing	9.4	9.6	10.1	10.8	11.5	12.5	33.9
Other Manufacturing	9.5	10.1	10.8	11.8	12.9	14.0	47.0
Construction	10.5	10.8	12.4	13.8	15.3	16.5	57.1
Distribution	9.8	10.5	11.6	13.0	13.7	15.2	54.9
Trans & Communication	12.6	13.1	13.5	14.9	15.3	16.3	29.3
Hotels and Restaurants	6.6	7.3	7.5	8.3	8.4	9.2	40.0
Other Market Services	12.3	12.9	13.6	15.0	15.7	16.6	35.4
Non-Market Public Services	14.9	15.8	16.5	18.1	19.1	20.1	35.2
State	10.9	11.5	12.3	13.6	14.4	15.5	42.6
			(Ratio of average state hourly earnings)				
Hi-Tech Manufacturing	0.86	0.84	0.82	0.80	0.80	0.81	
Other Manufacturing	0.87	0.88	0.88	0.87	0.90	0.90	
Construction	0.97	0.93	1.00	1.02	1.06	1.06	
Distribution	0.90	0.91	0.94	0.96	0.95	0.98	
Trans & Communication	1.16	1.14	1.10	1.10	1.06	1.05	
Hotels and Restaurants	0.61	0.63	0.61	0.61	0.58	0.60	
Other Market Services	1.13	1.12	1.10	1.11	1.09	1.07	
Non-Market Public Services	1.37	1.37	1.34	1.34	1.33	1.30	
State	1.00	1.00	1.00	1.00	1.00	1.00	

The figures in this table are taken from quarter one in each year except in 2003 when quarter three was used.

Looking at Table 8, it can be seen that the occupational composition of the hi-tech and other manufacturing sectors are relatively similar with only minor differences. For example, there are a slightly greater proportion of both professional and associate professional type occupations in the hi-tech sector, while the other manufacturing sector would contain more skilled craft type workers. In that case, both divisions of industry would contain similar type workers in terms of their skill and qualification levels.

Table 8. Occupational Composition by Sector in 2001 for Full-Time Employees.

	Managers	Profs.	Associate Profs.	Clerical	Craft Workers	Operatives	Other	State Totals
				(Proportion Within Sectors)				
Hi-Tech Manufact.	0.09	0.10	0.08	0.09	0.14	0.46	0.06	1.00
Other Manufact.	0.10	0.05	0.04	0.10	0.22	0.34	0.14	1.00
Construction	0.04	0.05	0.02	0.03	0.53	0.10	0.23	1.00
Distribution	0.20	0.02	0.01	0.15	0.10	0.06	0.46	1.00
Trans & Comm.	0.14	0.04	0.05	0.18	0.06	0.05	0.47	1.00
Hotels & Rest.	0.19	0.02	0.19	0.07	0.01	0.00	0.52	1.00
Other Mkt Serv.	0.19	0.20	0.15	0.29	0.02	0.02	0.13	1.00
Non-Mkt Serv.	0.08	0.41	0.05	0.23	0.01	0.01	0.21	1.00
State Totals	0.13	0.13	0.07	0.15	0.14	0.14	0.24	1.00

Source: QNHS.

Hourly earnings in the construction sector have shown significant growth over the period under review. In 1998, earnings in the construction sector were 97 per cent of state earnings, while in 2003 earnings in this sector had increased to 106 per cent of the state average. This represents an increase in hourly earnings for that sector of 57 per cent, the highest recorded proportional increase among all sectors. Over the same period, this large increase in earnings was accompanied by a parallel increase in employment in the sector at almost 50 per cent extra full-time employees. This is indicative of the boom in the building sector over the last number of years. As one would expect, the occupational composition of the building industry is predominantly skilled and unskilled manual workers, who benefited greatly from the growth in this sector over the last number of years.

In the sectoral breakdown in Table 7 above, the term 'private market services' could be used to describe the diverse sectors of distribution (retailing and wholesaling), transport & communication (land, sea and air transport, telecommunications etc), hotels & restaurants and other market services (finance, insurance, real estate etc). The private market services sector encompasses a large portion of total employment with approximately 450,000 full-time employees in 2003. However, the level of hourly earnings and the pattern of earnings growth within this broad categorisation can vary greatly.

For example, if you look at the hourly earnings growth among all sectors over the full period considered here, distribution was the second fastest growing sector at 55 per cent and transport & communication was the slowest growing sector at 29 per cent. This resulted in a reversal in fortunes for the hourly earnings of full-time employees between these two sectors. Hourly earnings in distribution, which in 1998 were 10 per cent below the state average, underwent a period of catch-up thereafter and in 2003 were only 2 per cent below the state average. In transport & communication, where previously full-time employees enjoyed earnings 116 per cent of the state average, that ratio in 2003 has fallen to 105 per cent. From an occupational composition point of view, these two sectors are relatively similar with a large proportion for each sector in the diverse occupational category 'other'. Workers in this category can range from service & sales type occupations in distribution to drivers of all sorts in the transport & communication sector. Generally, these workers (along with the operatives) would not have the same level of skills and qualifications as other occupations higher up the occupational classification.

Hotels & Restaurants constitute an exception in that the level of earnings in this sector is considerably less than any other sector, at a mere 61 per cent of the state average in 1998. Over the following five years, earnings growth almost kept pace with earnings growth in the economy generally and therefore maintained its earnings ratio of the state average. As one would expect, service & sales type occupations and managers constitute a large proportion of the occupations in this sector. There are, however, a significant number of associate professionals (19 per cent of employment within the sector) who would hold sub-degree type qualifications in hotel management etc.

Other market services, which is a diverse category of mainly business services (including financial intermediation, insurance services, legal & accounting services), saw relatively slower average growth in earnings than the wider economy and therefore lost some of its earnings premium over and above the level of earnings in

the economy as a whole. Therefore in 2003, earnings in this sector was 107 per cent of the state average, down from 113 per cent in 1998. The earnings premium that exists in this sector can be explained to a degree by the high prevalence of professionals and associate professional, at almost 35 per cent of full-time employees. The majority of the remaining workers can be occupationally classified as managers or clerical staff.

The last sector being considered here is the non-market services sector or in effect the public sector. As mentioned, the public sector earnings series does not include earnings from the health sector and does not include earnings from any of the commercial or non-commercial semi-state bodies. In each year presented here, earnings in the public sector exceeded the earnings in any other sector. One reason behind the high earnings in this sector is that 41 per cent of all workers in this sector are fully professional (i.e. generally have been awarded a university degree) and a further 5 per cent are classified as associate professionals (i.e. generally awarded sub-degree qualifications such as a diploma). It can be seen that relative to the growth in earnings in the wider economy, there was quite moderate growth in earnings in the public sector. This is reflected in a fall in its ratio of average state earnings, from 137 per cent of the state average in 1998 down to 130 per cent in 2003. This represents earnings growth over the five-year period of 35 per cent, below the growth in hourly earnings in the wider economy at 43 per pent.

Educational Attainment and Sectoral Earnings Growth

The variation in earnings growth by sector is interesting to view in terms of the educational attainment of full-time employees by sector. Table 9 shows the proportion of full-time employees in each sector that attained an educational level up to primary, lower secondary (junior certificate), upper secondary (Leaving Certificate) and third level. It can be seen that construction and distribution, the two sectors with the largest growth in earnings between 1998 and 2003, have the lowest proportions of full-time employees with third level qualifications. The public sector and other market services, each of which had earnings growth below the state average, have the highest proportions of full-time employees with third level qualifications. A pattern of earnings growth such as this has implications for the returns to education in the economy as a whole. If earnings are growing fastest in the sectors where educational attainment is lowest the returns to educational generally will fall.

Table 9. Educational Profile by Sector in 2001 for Full-Time Employees.

	Primary	Lower Secondary	Upper Secondary	Third Level	State
			(Proportion Within Sectors)		
Hi-Tech Manufact.	0.08	0.16	0.48	0.28	1.00
Other Manufact.	0.17	0.23	0.42	0.17	1.00
Construction	0.18	0.26	0.45	0.11	1.00
Distribution	0.10	0.19	0.55	0.16	1.00
Trans & Comm.	0.14	0.20	0.42	0.24	1.00
Hotels & Rest.	0.13	0.15	0.47	0.24	1.00
Other Mkt Serv.	0.04	0.05	0.36	0.55	1.00
Non-Mkt Serv.	0.06	0.07	0.31	0.56	1.00
State Totals	0.11	0.16	0.43	0.31	1.00

Source: QNHS.

Recent research in this area found evidence of this effect occurring between 1994 and 2000[7]. The research was based on panel data from the Living in Ireland Survey, which forms part of EUROSTAT's European Community Household Panel project. The main results from the analysis indicated a sharp fall in the returns to university degrees between 1994 and 2000. There was also a fall in the returns to Junior and Leaving Certificates relative to a "no qualification" category.

The Public Sector and the Social Partnership Process

The ability to present average hourly earnings for full-time employees in the public sector relative to comparable average hourly earnings in the economy as a whole is a useful way of viewing the dynamics of hourly earnings growth that has been occurring in the public sector since 1998. It is also interesting in the light of the ongoing commitment to social partnership and the recent report from the Public Service Benchmarking Body (PSBB). Among its terms of reference included the "*the need to ensure equity among employees in the public service and the private sector*"[8]. It had been argued that the pay differences between the public sector and the private sector had become inequitable and that this situation needed to be rectified. Therefore, the Benchmarking process involved the examination and consideration of work and reward of the public service and the private sector. Other objectives associated with the Benchmarking process included the need to ease staff recruitment and retention problems, to ensure ongoing modernisation of public services in order to achieve greater efficiency and effectiveness and to underpin Ireland's competitiveness. The process, which was initiated under the Programme for Prosperity and Fairness (PPF) in 2000, was published as part of the partnership agreement, Sustaining Progress.

The recommendation of the Body was to increase pay in the public service by on average 8.9 per cent, with significant variation across sector and grade. The increases decided upon under the Benchmarking process were of course additional to any increases already agreed under the relevant national wage agreements. Box 1 outlines the exact dates of the wage increases agreed upon under successive pay agreement since 1998 as well as any extra provisions that might have occurred over this period.

The first quarter of the recommended increases under Benchmarking were backdated to December 2001 and paid on ratification of the Sustaining Progress agreement. A further half of the recommended increases were paid from January 2004 and the final quarter of the increases are to be paid from June 2005. Only the first quarter was an unconditional increase in public sector earnings, the remainder was intended to be paid after public service employees proved their commitment to ongoing modernisation and change in the delivery of public services.

[7] See "The Mid-Term Evaluation of the National Development Plan and Community Support Framework", Pg. 36 – 43, Fitz Gerald et al (2003). Also "Earnings Inequality, Returns to Education and Immigration into Ireland", Barrett et al (2002).
[8] The Report of the Public Service Benchmarking Body, 30 June 2002.

Box 1.

National Wage Agreements, 1998 – 2004, Agreed Nominal Wage Increases.

National Wage Agreement	Dates Applicable	Agreed Change in Nominal Wage (%)
Partnership 2000	July '97 – June '98	2.5
	July '98 – June '99	2.25
	July '99 – Mar '00	1.5
	Apr '00 – Oct '00	1.0
Programme for Prosperity & Fairness		
	Oct '00 – Sept '01	5.5
	Oct '01 – Sept '02	5.5
	Oct'02 – June '03	4.0
Sustaining Progress	July '03 – Dec '03	3.0
	April '04 – Sept '04	2.0
	Oct '04 – Dec '04	2.0

Extra provisions between 1998 and 2003:

- 3.0 per cent 'early settler' provision paid in Oct 2000.
- 2.0 per cent inflation compensation paid in April 2001.
- 1.0 per cent once-off payment paid in April 2002.
- In Sustaining Progress the pay increases lagged behind the private sector by approximately 6 months. For example, July '03 – Dec '03 was characterised by a pay freeze in the public sector and the 3.0 per cent increase under this agreement was not paid until January 2004. The following 2.0 per cent will be paid in July '04 and the last 2.0 per cent will be paid in Dec '04. Therefore it can be seen that the delay between the public and private sector in paying the terms of Sustaining Progress is narrowing as the agreement runs towards maturity.
- The first quarter of the public sector Benchmarking pay increases was paid at varying times throughout the second half of 2003.

Amalgamating all of the above information, we find that that the annual average increase in nominal wages between the start of 1999 and the end of 2003 (five years of growth), agreed upon under successive national wage agreements, was approximately 5.4 per cent for the public sector and 4.7 per cent for the private sector. The private sector did not receive the 'early settlers' increase or the Benchmarking increases but also did not have a pay freeze in the second half of 2003. These figures are comparable with the annual average increases presented for various sectors in Table 10.

Table 10 attempts to investigate some of the issues raised by the report of the PSBB. It shows annual growth rates in average hourly earnings within the public sector. It also includes the category "all-private activities", which comprises of all sectors of the economy other than the public sector. The category "all-private activities (excluding construction)" has been included so as to compare the earnings growth in the public sector and an amalgam of private sectors. The construction sector was excluded here due to the distorting effect it has on the all-private activities category. Construction is unusual in the sense that it has undergone particularly large growth in terms of output, employment and earnings over the last number of years. Figure 3 graphically shows an index of the growth in average hourly earnings in the public sector, all-private activities (excl. construction) and all-private activities (excl. construction) between Q1 1998 and Q3 2003.

A certain degree of caution should be exercised in interpreting the average earnings from the public sector. Many public sector employees are paid on the basis of incremental scales with the result that significant recruitment, which usually occurs at the lower levels, can depress the average earnings in the sector. This should be borne

in mind but because the time period being considered is relatively short, these compositional issues are not thought to be serious.

Table 10. Annual Rates of Increase in Average Gross Hourly Earnings (%) in the Public Service and selected Private Sectors, 1999 to 2003.

	1999	2000	2001 (%)	2002	2003	1998 – 2003 Annual Avg. (%)
Non-Market	5.4	5.6	9.5	3.9	3.6	5.6
All Private Activities	6.7	8.8	8.9	5.8	5.5	7.1
All Private Activities (Excl. construction)	6.3	8.2	8.7	4.8	5.8	6.7

Note: The annual rate of increase in earnings for 2003 is a preliminary estimate as it is calculated using data from the first three quarters of that year only.
The annual average increases in earnings for 1998 – 2003 assumes that the annual rates for 2003 are that as stated above.

It can be seen from Figure 3 that over the full period, all three indices were clustered relatively closely together up until the end of 2001. At this time, the earnings growth in the public sector slowed noticeably while the earnings growth in private activities generally continued its upward trend. This is reflected in the fact that the annual increase in "all-private activities" in 2002 was 5.8 per cent while in the public sector the annual increase was 3.9 per cent. This trend has continued into the first three quarters of 2003.

Taking the full period from 1998 to 2003, hourly earnings in private activities grew proportionally faster than the public sector but the majority of this gap only emerged in 2002 and 2003. The annual average increase in earnings in private activities was 7.1 per cent compared with 5.6 per cent in the public sector. When construction is excluded from the all-private activities category the annual average increase in the remaining amalgam of private activities was slightly lower 6.7 per cent. Therefore, since 1998, a divergence in earnings growth for full-time employees has occurred between the public sector and the rest of the economy.

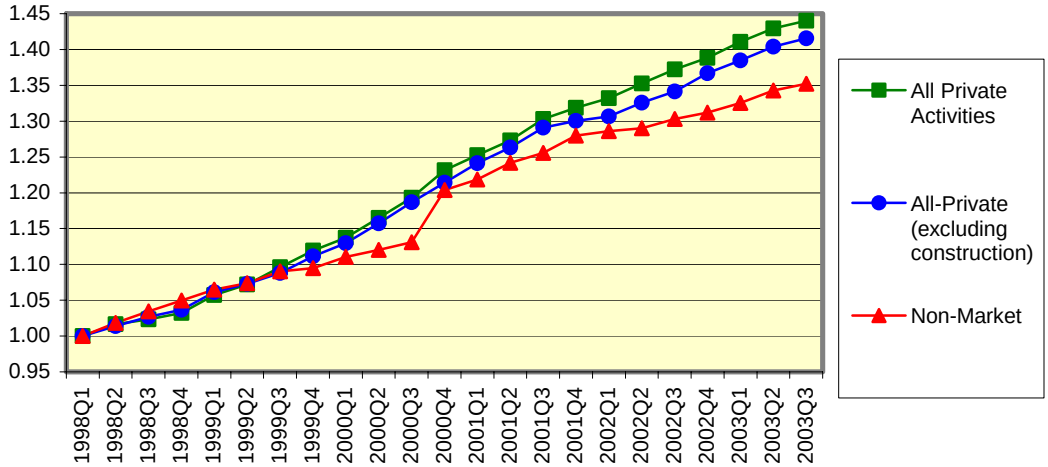
It is also possible to compare the earnings increases in the public sector to the earnings increases in a particular sub-sector of all-private activities such as "other market services", which could be classed as having a similar occupational profile to that of the public sector. Both the public service and other market services can classify approximately 55 per cent of full-time employees as either managers or professionals (fully and associate). They also have a similar proportion of clerical and other occupations (see Table 8). The annual average increase in earnings in this occupationally similar private sector category was also 5.6 per cent (not shown in Table 10). Therefore, taking the period from 1998 to 2003, it is difficult to say that any inequities have emerged between public sector earnings and earnings in an occupationally similar category such as "other market services".

These figures can be compared against the annual average increases in nominal wages agreed upon under successive national wage agreements over this period (see Box 1). Between the start of 1999 and the end of 2003 (five years of growth), the approximate annual average increase agreed upon was 5.4 per cent in the public sector. Therefore,

in terms of the excess over the agreed terms of the NWA's, the public sector gained only marginally extra on an annual average basis over this period.

Unfortunately, due to data restraints, the analysis is constrained here by the short time period. Ideally, data would be available stretching back to the early nineties before the Irish economy began to boom and income levels began to substantially increase. In that case, strong conclusions could be drawn as to whether or not the public sector has been diverging in terms of earnings growth from the private sectors of the economy.

Figure 3. Index of Average Hourly Gross Earnings in the Public Sector (excl. construction) and Other Selected Sectors, (Seasonally Adjusted), Q1 1998 - Q3 2003.



Conclusions

This article has attempted to develop a methodology to amalgamate the data from sectoral earnings surveys into an average gross earnings series for the economy as a whole. Due to various data constraints, the construction of this series was limited in a number of respects. Firstly, due to the recent nature of the distribution & earnings survey, the average gross earnings series for the state extends back only as far as 1998. The series is shown from a quarterly perspective from Q1 1998 up until the most recently published quarter (Q3 2003 at present). There was evidence of seasonal elements within this quarterly series and therefore the series was seasonally adjusted.

In terms of the proportion of the economy that is covered by this average gross earnings series, a number of sectors could not be included. The two most important sectors excluded because of data constraints were the health sector and the agricultural sector. Also, this earnings series only represents full-time employees which means part-time employees and the self-employed are not included. Therefore, an average gross *weekly* earnings series for full-time employees in the state was constructed by weighting the various sectoral earnings surveys using full-time employee weights from the Quarterly National Household Survey (QNHS). An average gross *hourly* earnings series for full-time employees in the state was subsequently calculated by utilising average hours worked by sector.

The value of this methodology is that it can be readily used to analyse movements in average earnings across a wider spectrum of the economy retrospectively as well as on an ongoing basis into to the future. Also, the adjustment to correct for the seasonal elements identified in the earnings series' allows analysis from a quarterly perspective. The recent developments towards a national employment survey, which include detailed questions on economy-wide earnings across sectors, occupations, gender, age etc will further add to our knowledge on earnings related issues.

Once sectoral earnings have been amalgamated in this way, it is possible to investigate the structure of sectoral earnings in the Irish economy. To do this, sectoral hourly earnings data are presented in terms of their ratio of the average state hourly earnings. When carrying out this exercise though, it is important to remember that when comparing earnings across sectors, you are not comparing like-with-like. The skills, qualifications and occupations vary across sectors. This must be borne in mind when viewing structural earnings data in terms of the sectors. The non-market public sector was registering by far the largest earnings premium over the state average earnings, while the hotel & restaurant sector was registering the lowest earnings across the sectors. In each quarter between 1998 and 2003, public sector full-time employees were earning over twice that of full-time employees in the hotel & restaurant sector in terms of average gross hourly earnings. In 2003, the other sectors with above average earnings were other market services, transport & communication and construction and the other sectors with below average earnings were industry (both hi-tech and other manufacturing) and distribution. In terms of hourly earnings growth between Q1 1998 and Q3 2003, the average growth across the whole economy was 43 per cent. The fastest growing sectors were construction (57 per cent) and distribution (55 per cent) and the slowest growing sector was transport & communication (29 per cent).

In the context of this article, the methodology adopted here also gives an added insight into the recent report published by the Public Service Benchmarking Body (PSBB). One of the grounds for the 8.9 per cent increase was a perceived inequity that had emerged between the earnings of public service employees and the equivalent private sector employee. This question was investigated by comparing the earnings growth of full-time employees in the public sector against the earnings growth of full-time employees in all-private activities between 1998 and 2003. It was shown that earnings grew proportionally faster among the private sectors of the economy, at a difference of approximately 1.5 per cent on an annual average basis.

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APPENDIX TABLES

Appendix Figure A1. Index of Average Gross Weekly and Hourly Earnings (Seasonally Adjusted) and the Consumer Price Index (CPI), Q1 1998 - Q3 2003

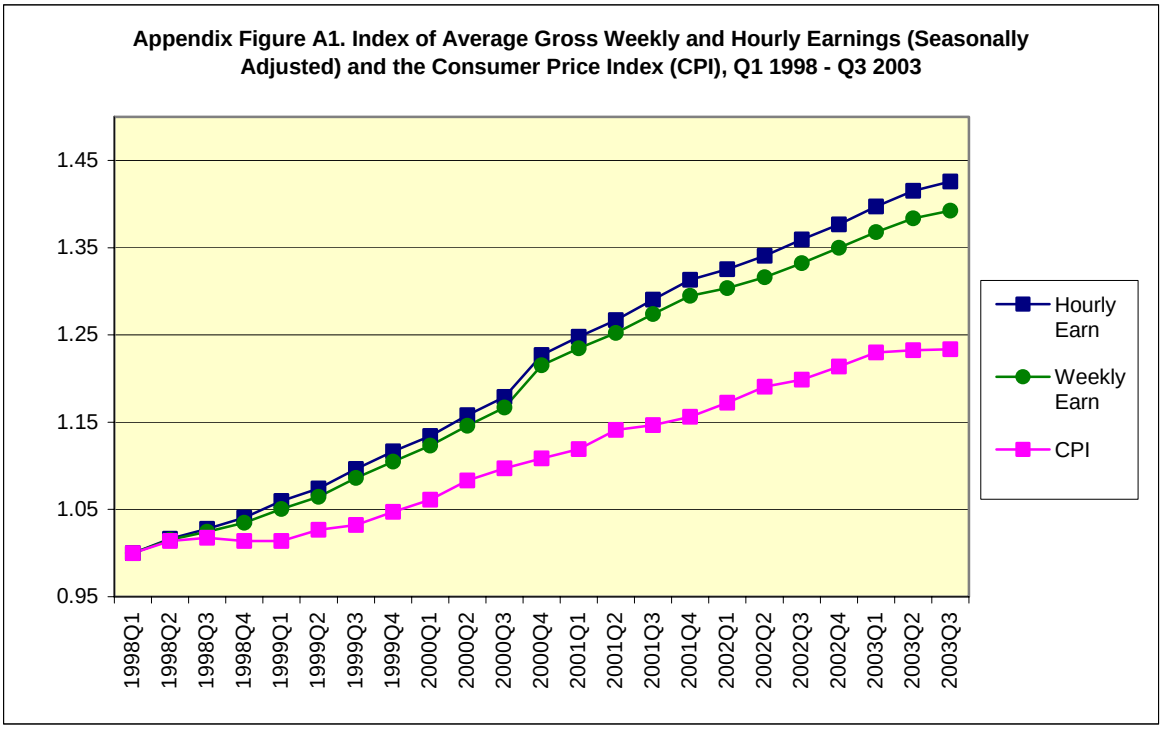

Table A1. Average Gross Hourly Earnings (€) by Sector for Full-Time Employees (Seasonally Adjusted), Q1 1998 – Q3 2003.

Period	Hi-Tech	Other Manufacturing	Construction	Distribution	Trans & Comm.	Hotels & Restaurants	Other Market Services	Non-Market Services	State
Q1 – 98	9.4	9.5	10.5	9.8	12.6	6.6	12.3	14.9	10.9
Q2 – 98	9.4	9.6	10.9	10.1	12.9	6.9	12.4	15.1	11.1
Q3 – 98	9.4	9.8	10.6	10.3	13.0	6.9	12.6	15.4	11.2
Q4 – 98	9.5	9.9	10.5	10.5	12.8	7.1	12.7	15.6	11.3
Q1 – 99	9.6	10.1	10.8	10.5	13.1	7.3	12.9	15.8	11.5
Q2 – 99	9.8	10.3	11.3	10.7	13.1	7.4	13.0	16.0	11.7
Q3 – 99	10.0	10.4	12.0	11.0	13.2	7.4	13.2	16.2	11.9
Q4 – 99	10.2	10.6	12.3	11.1	13.6	7.5	13.4	16.3	12.1
Q1 – 00	10.1	10.8	12.4	11.6	13.5	7.5	13.6	16.5	12.3
Q2 – 00	10.4	11.0	12.6	11.9	13.9	7.7	14.0	16.7	12.6
Q3 – 00	10.6	11.2	13.0	12.4	14.0	8.0	14.4	16.8	12.8
Q4 – 00	10.5	11.5	13.7	12.5	14.8	8.3	14.7	17.9	13.3
Q1 – 01	10.8	11.8	13.8	13.0	14.9	8.3	15.0	18.1	13.6
Q2 – 01	11.0	12.2	13.9	13.3	14.9	8.3	15.3	18.5	13.8
Q3 – 01	11.2	12.5	14.3	13.3	15.5	8.4	15.7	18.7	14.0
Q4 – 01	11.3	12.8	14.8	13.6	15.6	8.2	15.6	19.0	14.3
Q1 – 02	11.5	12.9	15.3	13.7	15.3	8.4	15.7	19.1	14.4
Q2 – 02	11.6	13.1	15.8	14.1	15.5	8.5	15.8	19.2	14.6
Q3 – 02	11.9	13.3	16.0	14.3	15.5	8.7	15.9	19.4	14.8
Q4 – 02	12.3	13.4	15.8	14.8	15.3	8.9	16.0	19.5	15.0
Q1 – 03	12.5	13.7	16.2	14.9	16.0	9.0	16.2	19.7	15.2
Q2 – 03	12.6	13.8	16.5	15.0	16.2	9.2	16.4	20.0	15.4
Q3 – 03	12.5	14.0	16.5	15.2	16.3	9.2	16.6	20.1	15.5

Quarters one, two, three and four here refer to March, June, September and December respectively.

Table A2. Indices of Average Gross Hourly Earnings (€) by Sector for Full-Time Employees (Seasonally Adjusted), Q1 1998 – Q3 2003.

Period	Hi-Tech	Other Manufacturing	Construction	Distribution	Trans & Comm.	Hotels & Restaurants	Other Market Services	Non-Market Services	State
Q1 – 98	100	100	100	100	100	100	100	100	100
Q2 – 98	100	102	103	103	103	104	101	102	102
Q3 – 98	101	103	101	105	104	105	103	103	103
Q4 – 98	102	105	100	107	101	107	104	105	104
Q1 – 99	103	107	102	107	104	111	105	106	106
Q2 – 99	104	108	107	109	104	112	106	107	107
Q3 – 99	107	110	114	112	105	112	107	109	110
Q4 – 99	109	112	117	113	108	113	109	109	112
Q1 – 00	108	114	118	118	108	114	111	111	113
Q2 – 00	112	116	120	121	110	117	114	112	116
Q3 – 00	114	118	123	126	111	121	117	113	118
Q4 – 00	113	121	131	127	118	126	120	120	123
Q1 – 01	115	125	131	133	119	126	123	122	125
Q2 – 01	118	128	132	136	119	126	124	124	127
Q3 – 01	120	132	136	136	123	127	128	126	129
Q4 – 01	120	135	141	138	124	125	127	128	131
Q1 – 02	123	136	146	140	122	127	128	129	133
Q2 – 02	124	138	150	143	123	129	129	129	134
Q3 – 02	127	140	153	145	123	131	129	130	136
Q4 – 02	132	142	150	151	122	135	130	131	138
Q1 – 03	134	144	154	152	128	137	132	133	140
Q2 – 03	135	146	157	152	128	139	133	134	142
Q3 – 03	134	147	157	155	129	140	135	135	143

Quarters one, two, three and four here refer to March, June, September and December respectively.

Table A3. Occupational Composition by Sector in 2001 for Full-Time Employees.

	Managers	Professionals	Associate Professionals	Clerical	Craft Workers	Operatives	Other	State Totals
				(000)				
Hi-Tech	12.7	13.7	10.6	12.3	19.2	64.4	8.3	141.1
Other Manufacturing	14.0	6.8	6.0	13.7	29.9	46.9	19.0	136.4
Construction	5.0	6.6	2.6	3.5	66.8	13.3	28.6	126.3
Distribution	29.4	3.2	1.2	21.4	14.7	8.3	66.3	144.5
Trans & Communication	12.0	3.3	4.5	14.9	4.9	4.5	39.1	83.2
Hotels & Restaurants	10.8	0.9	10.8	4.2	0.3	0.1	29.0	56.0
Other Market Services	30.4	32.2	24.2	47.3	3.5	2.6	20.2	160.5
Non-Market Public Services	12.2	62.8	8.1	35.1	2.2	1.3	32.1	153.8
State Totals	126.4	129.5	68.1	152.4	141.5	141.4	242.5	1001.8
				(Proportion Within Sectors)				
Hi-Tech	0.09	0.10	0.08	0.09	0.14	0.46	0.06	1.00
Other Manufacturing	0.10	0.05	0.04	0.10	0.22	0.34	0.14	1.00
Construction	0.04	0.05	0.02	0.03	0.53	0.10	0.23	1.00
Distribution	0.20	0.02	0.01	0.15	0.10	0.06	0.46	1.00
Trans & Communication	0.14	0.04	0.05	0.18	0.06	0.05	0.47	1.00
Hotels & Restaurants	0.19	0.02	0.19	0.07	0.01	0.00	0.52	1.00
Other Market Services	0.19	0.20	0.15	0.29	0.02	0.02	0.13	1.00
Non-Market Public Services	0.08	0.41	0.05	0.23	0.01	0.01	0.21	1.00
State Totals	0.13	0.13	0.07	0.15	0.14	0.14	0.24	1.00
				(Proportion Across Sectors)				
Hi-Tech	0.10	0.11	0.16	0.08	0.14	0.46	0.03	0.14
Other Manufacturing	0.11	0.05	0.09	0.09	0.21	0.33	0.08	0.14
Construction	0.04	0.05	0.04	0.02	0.47	0.09	0.12	0.13
Distribution	0.23	0.02	0.02	0.14	0.10	0.06	0.27	0.14
Trans & Communication	0.10	0.03	0.07	0.10	0.03	0.03	0.16	0.08
Hotels & Restaurants	0.09	0.01	0.16	0.03	0.00	0.00	0.12	0.06
Other Market Services	0.24	0.25	0.36	0.31	0.02	0.02	0.08	0.16
Non-Market Public Services	0.10	0.48	0.12	0.23	0.02	0.01	0.13	0.15
State Totals	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source. CSO, *Quarterly National Household Survey* (QNHS), Q2 2001.

APPENDIX I

CSO Sectoral Earnings Surveys

Industrial Earnings and Hours Worked

The Industrial Earnings and Hours Worked survey provides estimates of average gross earnings (both hourly and weekly before tax) for all industrial workers in the state. It therefore looks at both part-time and full-time workers although the proportion of part-time workers in industry is very low. Gross earnings refer to payments to employees before deductions of income tax and PRSI etc and including overtime, commissions and regular bonuses.

The headline average earnings estimates in this survey would be for all industries, transportable goods industries (which excludes electricity, gas, and water) and manufacturing industries (which excludes mining, quarrying, electricity, gas and water). These average earnings estimates are broken down further by the NACE Rev 1 code for industrial classification. This detailed breakdown within the industrial earnings survey is very useful for the purposes of this article, as it allows us to calculate an earnings series for various parts of industry, for example the mainly foreign owned hi-tech sector and the mainly indigenous owned traditional manufacturing sector. It is interesting to examine the earnings data from these two quite compositionally different divisions of industry. Note that these two divisions would reflect different mixes of occupations and skills and therefore do not represent earnings for comparable work.

This survey also contains earnings series for a limited number of occupations, namely industrial (operatives, maintenance workers, storekeepers etc), clerical and managerial and it contains a breakdown by gender and firm size (measured by the number of persons engaged).

Public Sector Employment and Earnings

The public sector survey covers a number of different sub-sectors. These are:

- *Civil Service*
- *Defence Forces*
- *Garda Síochána*
- *Local Authorities*
- *Education (excluding private institutions)*
- *Semi-State Bodies (excluding their subsidiary companies)*

Where feasible, earnings data is extracted directly from administrative sources. Unfortunately the health sector had to be excluded due to the lack of available data. Health constitutes a large proportion of the public sector. In 2001, there were approximately 90,000 people working in health, which in that year was almost 30 per cent of the total number employed in the whole public sector. Therefore, no allowance could be made for health within the calculations for the public sector earnings series or the overall economy wide earnings series.

The coverage of employment encompasses both full-time (permanent and temporary), part-time staff and staff on holidays. The earnings data relate to average gross weekly (no hourly data available) payments made to employees before income tax deductions and including overtime, regular bonuses and holiday/sick pay. Redundancy payments or back pay are not included. Some groups are characterised by high levels of overtime on a regular basis (e.g. prison officers and garda síochána) and earnings series excluding overtime are included in these cases.

Earnings in Distribution & Business Services

The distribution & business services survey is the newest of the sectoral earnings surveys being considered here and in effect made possible the attempted calculation of an economy-wide earnings series. The reason for this is the size of the distribution & business services sector. The QNHS tells us that the distribution & business services survey covers almost 400,000 full-time employees, almost 40 per cent of all full-time employees. Therefore, it would constitute a large omission if one were to

proceed without this sector. On the other hand, it also provides the calculations with a number of constraints.

Firstly, this survey only extends back to the start of 1998 and therefore the economy-wide series will only be able to be calculated from 1998 up until to the present. This is unfortunate, as data from the preceding number of years, that formed part of a period of unprecedented growth in the Irish economy, would have added much to the analysis.

Secondly, the business services survey only covers full-time employees. It was not possible for the survey to derive reliable earnings estimates for part-time employees. This presented a problem for the weighting of the sectoral earnings series' in the calculation of more amalgamated earnings series'. The sectoral earnings series' are weighted using the sectoral employment data from the QNHS. Since the business services survey only records earnings data for full-time employees, the weights used should also be calculated using only full-time employees. This is especially true in this case given that business services by its nature would include a large proportion of seasonal or part-time employment. For example, the accommodation & catering sub-sector (for which data is collected in this survey) would contain approximately 32 per cent part-time employees. By using full-time plus part-time employment weights the earnings in the accommodation & catering sub-sector would be given too much significance in the calculation of more amalgamated earnings series'.

The type of areas covered by this survey are motor trade, wholesale trade, retail trade, accommodation & catering, transport, post and telecommunications, real estate, computing activity and R&D. The series only attempts to cover enterprises with 5 or more persons engaged and indications were that including smaller enterprises would substantially reduce the full-time weekly earnings figures. The earnings estimates are, similar to the other surveys, gross payments made to employees including overtime etc. An occupation or gender breakdown was not sought in this survey.

Earnings and Hours Worked in Construction

This Construction survey is the oldest such earnings publication under review, the first results being published in 1970. It covers private enterprises with 10 or more persons engaged. It collects average earnings data on an hourly and a weekly basis in respect of skilled and unskilled operatives and other employees (managerial, clerical, technical and supervisory). The average weekly earnings are collected from a gross pay point of view before income tax deductions. "Wet time" payments are included.

Banking, Insurance and Building Societies: Employment and Earnings

This survey covers banks, building societies and insurance companies, which are also business services but were not covered in the previous survey. These, in effect, form a large part of the financial services sector. During the weighting process, the earnings series from this publication were taken to proxy the earnings series in the whole financial services sector (Rev 1 NACE industrial classification codes 65, 66, 67).

As before, the type of earnings collected in this survey seems to be relatively consistent with the type of earnings collected in each of the other earnings surveys under examination here. It is the gross weekly payment (hourly data not available) made to the employee before income tax or social insurance payments and including payments such as overtime and regular bonuses. Full-time and part-time employees are included in this survey as well as employees on holiday or temporarily out sick.